quently alter the erosion rate. Impacts on groundwater are described in Sections 4.1.3, 4.2.3, and 4.3.3.

#### 4.1.1.2.1 No Action

Maintenance of the River Water System and the lake level would not affect the geology or soils in the L-Lake area. The soils and geology in L-Area upgradient of the lake are contaminated at four Comprehensive Environmental Response, Compensation, Liability Act (CERCLA) sites, but there is no evidence that this alternative would exacerbate contaminant migration through the soils or geologic formations. Section 4.1.3.2.1 discusses the contaminant movement in groundwater. The outfall of the River Water System from L-Area to L-Lake is downgradient of the contaminated areas and is not a mechanism for contamination. The continued outfall of L-Area water would not foster contamination of soils or geology.

#### 4.1.1.2.2 Shut Down and Deactivate

The lowering of the pool would not compromise geologic conditions or resources. Because no changes in the stability of the geologic formations are likely, this alternative should not compromise the structural competency of the L-Lake dam.

As the lake recedes, Steel Creek would resume a course similar to the old stream channel, but within recently deposited lacustrine deposits. Reestablished stream activity could remobilize soils contaminated by preimpoundment activities. Section 4.1.2.2 describes impacts related to the reemergence of Steel Creek. DOE studies indicate that higher concentrations of cesium contamination already exist below L-Lake (DOE 1984). Soils and exposed geological strata could become contaminated downstream of L-Lake during or after exposure. Potential resuspension of contaminated sediments and their redeposition to downstream areas would result in small increments of contamination. Contaminated soil resuspension should not occur if the recession is gradual (as expected) because grasses and other vegetation would overtake the area.

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#### 4.1.1.2.3 Shut Down and Maintain

Impacts resulting from this alternative would be similar to those described in Section 4.1.1.2.2 above. Maintenance of the dam would impede the transport of upstream soils and lacustrine deposits; thereby limiting potential downstream (Steel Creek) contamination.

### 4.1.2 SURFACE WATER

#### 4.1.2.1 <u>Affected Environment</u>

Section 4.1 contains a description of L-Lake. The intake tower for L-Lake is offset to the east of the former Steel Creek stream bed. The intake tower includes two service and emergency gates near the bottom of the lake and two regulating gates 7 feet (2 meters) below the normal pool elevation, 190 feet (58 meters). Two service gates located at the base of each collective well regulate flows to Steel Creek. This intake tower design permits water flow regimes from the upper [177 feet (54 meters) to 183 feet (56 meters)] and/or lower [115 feet (35 meters) to 119 feet (36 meters)] regions of L-Lake.

**Permitted Wastewater and Stormwater Discharges to L-Lake**

The South Carolina Department of Health and Environmental Control (SCDHEC) has permitted three wastewater discharge outfalls (L-07, L-07A, and L-08), the effluents of which originate from point and area sources in L-Area, to discharge to L-Lake under National Pollutant Discharge Elimination System Permit No. SC0000175. Outfall L-07 discharges Savannah River water pumped from the L-Area water storage 186-Basin, sanitary effluent from Outfall L-07A, process sewer and L-Reactor building drains wastewater, and L-Area stormwater. This effluent flows to L-Lake through the lake's influent canal. DOE has based Outfall L-07 effluent water quality limitations on maximum and average flows of 132 million gallons

(499,670 cubic meters) per day and 41.7 million gallons (157,850 cubic meters) per day, respectively; these limitations are as follows (SCDHEC 1996a):

- Total suspended solids – daily maximum: 40 milligrams per liter; monthly average: 20 milligrams per liter
- Oil and grease – daily maximum: 15 milligrams per liter; monthly average: 10 milligrams per liter
- pH – 6.0 to 8.5

Outfall L-07A is the wastewater sampling point for the L-Area sanitary wastewater treatment plant. Outfall effluent water quality limitations are based on the treatment plant capacity limited maximum flow of 35,000 gallons (133 cubic meters) per day and have been established as follows:

- Total suspended solids – weekly average: 45 milligrams per liter; monthly average: 30 milligrams per liter
- Dissolved oxygen – daily minimum: 1.0 milligram per liter
- Biochemical oxygen demand – weekly average: 45 milligrams per liter; monthly average: 30 milligrams per liter
- Fecal coliform – daily maximum: 400 per 100 milliliters; monthly average: 200 per 100 milliliters
- pH – 6.0 to 9.0

SCDHEC has not imposed effluent water quality limitations on ammonia, nitrate-nitrite (as nitrogen), or zinc primarily due to sufficient blending with other waste streams at Outfall L-07.

Outfall L-08 receives wastewater from the L-Area engine house cooling system, L-Reactor building drains, and L-Area stormwater runoff. Generation of the engine house effluent is necessary to maintain equipment operability, but does not occur because L-Reactor is shut down. DOE has based Outfall L-08 effluent water quality limitations on maximum and average flows of 2.367 million gallons (8,960 cubic meters) per day and 912,000 gallons (3,450 cubic meters) per day, respectively, and has established these limitations as follows:

- Total suspended solids – daily maximum: 40 milligrams per liter; monthly average: 20 milligrams per liter
- Oil and grease – daily maximum: 15 milligrams per liter; monthly average: 10 milligrams per liter
- pH – 6.0 to 8.5

**Water Quality**

Water quality comprises the physical and chemical features that define the suitability of a reservoir for a defined use. This EIS defines water quality as physical and chemical characteristics that are suitable for maintaining biologically balanced communities in L-Lake.

DOE monitored L-Lake water quality extensively from the filling of the lake in November 1985 until December 1992 as part of the L-Lake/Steel Creek Biological Monitoring Program (Kretchmer and Chimney 1993). DOE designed the monitoring program to meet environmental regulatory requirements associated with the restart of L-Reactor, primarily Section 316(a) of the Clean Water Act, which addresses thermal effects. The monitoring included field measurements, major ions, and plant nutrients; trace metals and radioactive materials were studied by DOE in 1995 and 1996.

Field Measurements and Thermal Structure

The monitoring program noted that vertical gradients in L-Lake water temperature caused by solar heating begin to develop in January or February and become more pronounced through the spring (Kretchmer and Chimney 1993). A more or less stable condition of thermal stratification typically exists by May. Temperatures in the mixed surface zone are highest in July or August, averaging about 80.6°F (27°C); the bottom zone, or hypolimnion, has temperatures ranging from 55.4° to 60.8°F (13° to 16°C). The zone between the mixed layer and the hypolimnion, the metalimnion, is where the change in temperature with depth is most rapid. Since 1987 the top of the metalimnion is typically between 16 and 20 feet (5 and 6 meters) deep during thermal stratification in L-Lake. Maximum temperature near the surface is about 86°F (30°C). Fall turnover usually begins in September or October and ends in November. Lowest temperature, around 50°F (10°C), usually occurs in January or February.

Thermal stratification prevents bottom waters from exchanging gases with the atmosphere, and dissolved oxygen levels in the L-Lake hypolimnion begin to decline in February or March (Kretchmer and Chimney 1993). Dissolved oxygen in the hypolimnion first fell below 1 milligram per liter in March in 1988, in May from 1989 through 1991, and in July in 1992. This progression, indicative of a slower decline in hypolimnetic oxygen concentrations during stratification, indicates that L-Lake was becoming less eutrophic. Surface-water oxygen levels were seldom below 5 milligrams per liter. The highest dissolved oxygen concentrations, 11 to 13 milligrams per liter, occurred in January, February, or March; this is mainly a function of temperature, but the highest levels were probably influenced by photosynthesizing phytoplankton near the water surface.

From 1988 to 1992, pH values in L-Lake varied from about 5 to 9; the lowest values were not associated with a particular area or season, but the highest were attributable to high rates of phytoplankton productivity in the surface-water layer, or mixing zone, from February to July (Kretchmer and Chimney 1993). Mixing zone pH levels were seldom below 6.

Mean specific conductance values in L-Lake during 1992 ranged from 58 to 73 microsiemens per centimeter (Kretchmer and Chimney 1993). These values were similar to those seen in 1991, which were 10 to 20 microsiemens per centimeter lower than 1990 levels, which were, in turn, 10 to 20 microsiemens per centimeter lower than in previous years. The highest specific conductance values were generally recorded in the hypolimnion during the fall.

DOE measured oxidation-reduction (redox) potential in L-Lake to distinguish reducing and oxidizing areas and to quantify the reducing potential. Low (strongly negative) redox potentials, which are associated with anaerobic conditions in the hypolimnion, indicate reducing conditions. Conversely, high or positive redox potentials occur in the presence of oxygen and indicate oxidizing conditions. During the L-Lake monitoring program, redox potential was positive throughout the water column except in the hypolimnion during summer stratification (Kretchmer and Chimney 1993). The lowest potential, about −250 millivolts, occurred in 1988. The hypolimnetic potentials have been less strongly negative in more recent years. The lowest redox potential in 1992 was about −130 millivolts.

<u>Major Ions</u>

Alkalinity concentrations ranged from 6 to 29 milligrams of calcium carbonate per liter in 1992, similar to levels observed in 1990 and 1991, but lower than those seen in the first part of the study (Kretchmer and Chimney 1993). Alkalinity values were highest in the hypolimnion, usually in the summer or fall and lowest in the winter. At 5.4 to 6.8 milligrams per liter, chloride concentrations in 1992 were similar to those in 1991, 1986, and 1987 but lower than the values observed from 1988 through 1990. Sulfate levels ranged from 2 to 8 milligrams sulfate per liter in 1992, similar to values seen in the first years of the study and in 1990 and 1991, but lower than those observed in 1988 and 1989.

Concentrations of total calcium, magnesium, and potassium declined slightly during the 7 years of study and were never higher than about 5 milligrams per liter (Kretchmer and Chimney 1993). The ranges of total sodium concentrations increased from 1986 (6 to 12 milligrams per liter) to 1989 (9 to 18 milligrams per liter) and then decreased in 1991 and 1992 (4 to 9 milligrams per liter).

Mean total aluminum concentrations measured from 1985 to 1992 were generally slightly greater than the detection limit (0.1 milligram per liter) and no higher than about 1 milligram per liter (Kretchmer and Chimney 1993). Total aluminum levels appeared to decline during the study period. Iron was present in higher concentrations in hypolimnetic samples (0.05 to 12 milligrams per liter) than in mixed layer samples (less than 0.02 to 6.9 milligrams per liter), reflecting thermal stratification and dissolution in the reducing conditions in the hypolimnion. Total manganese behaved similarly and ranged from 0.04 to 8.5 milligrams per liter in the hypolimnion and from less than 0.02 to 2.2 milligrams per liter above the hypolimnion.

TE | Nutrient Loading

Nutrient availability has declined in L-Lake since 1986; this is partly associated with the reservoir aging process. Reservoirs are often characterized by a pulse of high primary productivity (milligrams of carbon fixed per square meter per day) soon after filling due to the release of nutrients from inundated terrestrial vegetation and soils; this productivity usually decreases with time. However, L-Lake also received nutrients in the water imported from the Savannah River, which contains relatively high levels of total phosphorus and nitrogen, which created eutrophic conditions in L-Lake. Reduced nutrient loading to L-Lake began with reductions of L-Reactor power levels in 1987, and continued after DOE shut L-Reactor down in mid-1988. Annual loading rates for total phosphorus ranged from 4.6 to 6.0 milligrams of phosphorous per square meter per day from 1990 to 1992, decreasing each year (Kretchmer and Chimney 1993). Average orthophosphorus loading rates ranged from 2.6 to 3.3 milligrams of phosphorous per square meter per day for the same years. These values are well above loading levels considered dangerous for eutrophication (Wetzel 1983).

L-Lake acted as a very effective nutrient sink and retained most of the total phosphorus and orthophosphorus imported to it during the first 4 years of the study. L-Reactor effluent had mean total phosphorus concentrations ranging between 0.06 and 0.246 milligrams of phosphorous per liter from 1985 to 1989 (Wike et al. 1994). L-Lake concentrations of total phosphate and orthophosphate ranged from 0.014 to 0.864 milligrams per liter and less than 0.005 to 0.816 milligrams per liter, respectively, from 1985 through 1989. L-Lake also retained phosphorus from 1990 through 1992, but the concentrations in L-Reactor effluent were slightly lower (Kretchmer and Chimney 1993). Total phosphorus concentrations in the mixing (euphotic, in this case) zone of L-Lake appeared to decrease from 1990 to 1992 (Carson and Cichon 1993).

L-Lake also retained imported nitrogen compounds (nitrite, nitrate, and ammonia) very effectively (Wike et al. 1994). However, the lake usually exported more total Kjeldahl nitrogen than was present in the reactor effluent. Concentrations of L-Lake nitrogen compounds ranged as follows: nitrite, from less than 0.001 to 0.092 milligrams per liter; nitrate, from less than 0.001 to 0.660 milligrams per liter; and ammonia, from less than 0.01 to 2.72 milligrams per liter. Nitrate, ammonium, and total Kjeldahl nitrogen concentrations in the mixing (euphotic, in this case) zone of L-Lake appeared to decrease from 1990 to 1992 (Carson and Cichon 1993).

Trace Metals

During September 1995, eight L-Lake water samples were analyzed for the U.S. Environmental Protection Agency (EPA) target analyte list of metals (Paller 1996). Although none of the detected metals exceeded EPA acute toxicity screening values for surface waters, the detection limits for cadmium, lead, mercury, and silver were above chronic toxicity screening values (0.66 micrograms per liter, 1.32 micrograms per liter, 0.012 micrograms per liter, and 0.012 micrograms per liter, respectively). Therefore, the elimination of these metals as potential L-Lake contaminants is impossible. Both iron and beryllium were measured at concentrations that exceeded their respective EPA chronic screening values (1,000 micrograms per liter and 0.53 micrograms per liter, respectively), but these concentrations occurred in the hypolimnion during stratification. DOE concluded that radionuclides and metals in L-Lake water were not present in levels likely to be deleterious to aquatic life (Paller 1996).

Radioactive Materials

Early periods of P-Reactor and, to a lesser extent, L-Reactor operations resulted in releases of radioactive materials, primarily cesium-137, into Steel Creek where they became adsorbed on sediments in the Steel Creek floodplain that was inundated with the filling of L-Lake. During September 1995, DOE screened eight L-Lake water samples for a variety of radioactive contaminants (Paller 1996). No contaminants were present in concentrations likely to be deleterious to aquatic life, although cesium-137 and alpha-emitting radionuclides were present in measurable amounts in one of four water samples taken near the bottom of the reservoir. A fraction of cesium-137 remobilizes from sediments under anoxic conditions and this mechanism probably was responsible for the sample results.

In a 1995 study DOE took sediment core samples from eight L-Lake locations (Koch, Martin, and Friday 1996). These locations included a single, shallow (nonchannel) and seven channel sites. The mean volume-weighted cesium-137 concentration for all L-Lake core samples was 8.7 picocuries per gram and ranged as high as 103 picocuries per gram.

The analysis of the eight sediment cores from L-Lake also included semivolatiles and nonradionuclide inorganics (Koch, Martin, and Friday 1996). Inorganics were measured at concentrations below EPA Region IV screening levels with the exception of arsenic and one value for mercury. The arsenic results were below detection limits, making it impossible to definitely eliminate it as a potential contaminant. TC

#### 4.1.2.2 Environmental Impacts

##### 4.1.2.2.1 No Action

There would be no new or enhanced impacts to L-Lake surface water quality or use if the No-Action Alternative was selected.

##### 4.1.2.2.2 Shut Down And Deactivate

**Lake Recession**

DOE performed three computer-based simulations of the fluctuations in water level for L-Lake with a constant discharge of 10 cubic feet (0.28 cubic meter) per second using the U.S. Army Corps of Engineers' hydrologic model HEC-5 with rainfall and stream flows for 1980 to 1989 (a low-flow drought period) and 1960 to 1979 (average and above average stream flow conditions). These simulations assumed that no additional water (e.g., groundwater seepage) was entering L-Lake; thus, they produced results that probably exaggerate the extent of L-Lake recession. The simulations used both precipitation-based stream flows and stream flow-based L-Lake inflows computed with U.S. Geological Service gauging station data for Upper Three Runs. As expected, all simulations predicted that L-Lake would slowly drain from its normal pool of 190 feet (58 meters) above mean sea level (a reasonable outcome considering the size of the L-Lake watershed, estimated Steel Creek inflows, and required reservoir discharge). One simulation used the historic low-flow period in conjunction with stream flow-based modeling to predict that recession to within 15 feet (4.6 meters) of the nominal damsite Steel Creek elevation of 115 feet

(35.1 meters) would occur within about 10 years (Jones and Lamarre 1994).

DOE has analyzed the water balance of L-Lake to determine the significance of various water balance components and to estimate the overall effects of reducing the discharge from L-Lake to Steel Creek. Savannah River pumping inflow from L-Area and discharge through the dam into Steel Creek have dominated the water balance of L-Lake. The average natural inflow to L-Lake from precipitation [5.7 cubic feet (0.16 cubic meter) per second] and natural Steel Creek flow [1.4 cubic feet (0.04 cubic meter) per second] combine to about 7.1 cubic feet (0.20 cubic meter) per second. Annual average lake water losses through evaporation [4.9 cubic feet (0.14 cubic meter) per second] and groundwater percolation [1.1 cubic feet (0.03 cubic meter)] per second combine to about 6.0 cubic feet (0.17 cubic meter) per second. With a reduction in lake discharge to the base flow of 10 cubic feet (0.28 cubic meter) per second, about 4,100 gallons per minute (0.26 cubic meter per second) of additional inflow would be required to maintain the lake level. A higher estimate of groundwater percolation loss [3,200 gallons per minute (0.20 cubic meter per second)] due to uncertainty in estimating this loss parameter would increase the additional inflow needed to maintain the lake level to 6,700 gallons per minute (0.42 cubic meter per second) (del Carmen and Paller 1993a).

**Siltation**

Because the L-Lake watershed cannot supply enough water to compensate for natural water losses and the required discharge to Steel Creek, DOE expects continual drawdown of the lake, with minor periods of reservoir refilling during storm events. Once exposed, the lakebed would be susceptible to erosion with potentially increased levels of siltation in Steel Creek. This process could result in the downstream transport of contaminants.

**L-Lake Embankment**

Regardless of the extent of L-Lake recession, the L-Lake embankment and outlet works will need continued inspection and maintenance as required by the Federal Energy Regulatory Commission. These inspections will, among other things, ensure that the intake tower gates remain unobstructed to prevent a partial or complete refill of the reservoir (Jones 1996b).

The ability to withstand an extremely rare probable maximum flood [a hypothetical intense storm event releasing 28 inches (72 centimeters) of rain in 24 hours] has been included in the design bases for the embankment. The existing outlet works and natural saddle emergency spillway to Pen Branch would remain fully capable of controlling and attenuating all storm event impacts, including those resulting in the probable maximum flood, without overtopping the embankment (DOE 1984).

**Pooling at the Intake Tower**

The L-Lake intake tower is offset from the midline of the Steel Creek bed and the lower gates are at an approximate 15 foot (5 meter) higher elevation [130 feet (40 meters) above mean sea level] than the former Steel Creek bed [115 feet (35 meters) above mean sea level]. As a consequence, complete recession to the former Steel Creek channel would not be possible and a small pond would form upstream of the dam. This pond should act as a stilling basin and, therefore, ameliorate the siltation discussed above. However, once this pond has silted in, storm events could cause movement of the silt to reaches of Steel Creek below the dam.

**L-Area Sanitary Wastewater Treatment Plant**

DOE has calculated that L-Area Sanitary Wastewater Treatment Plant (SWTP) discharges from National Pollutant Discharge Elimination

System-permitted Outfall L-07A through Outfall L-07 to L-Lake would not meet the SCDHEC water quality criteria after DOE stopped pumping Savannah River water to L-Area. DOE has evaluated additional treatment plant technologies to achieve the required water quality at Outfall L-07 and found them impracticable because of extensive operation and maintenance (O&M) requirements. As a consequence, DOE evaluated an alternative (elimination of SWTP discharges to surface water) as three options:

- Option 1 – septic tank and tile field installation with estimated capital and annual O&M costs of $70,100 and $120, respectively
- Option 2 – Central Sanitary Wastewater Treatment Facility tie-in with estimated capital and annual O&M costs of $1,970,000 and $10,200, respectively
- Option 3 – spray field discharge with estimated capital and annual O&M costs of $970,000 and $88,260, respectively

After comparing the net present values of these options, DOE concluded that Option 1 would be the preferred approach if the L-Area worker population did not exceed 250 persons. If the population exceeded 250 (e.g., due to new mission assignments), DOE concluded that Option 2 would enable more efficient use of current resources and would provide the necessary treatment regardless of worker population variability (Huffines 1996b).

**Water Quality**

DOE anticipates an increase in suspended solids loading in L-Lake, and perhaps in its discharge, as recession occurs. This increase is likely to be temporary; as exposed sediments become vegetated, the rate of erosion would decline and eventually stabilize. The discharge of significant suspended solids from L-Lake would depend on the size and morphometry of the remaining pool, and on storm event conditions such as rainfall and wind speed. On a short-term basis, increased suspended solids concentration, which contributes to turbidity, could interfere with primary and secondary production, flocculate plankton, and reduce food availability to invertebrates and fish.

The reduction of Savannah River water input to L-Lake would result in reduced loading of nutrients. This process has been proceeding in L-Lake without apparent deleterious effects. However, the change in nutrient loading caused by water supply shutdown probably would be more severe than previous reductions. Reduced primary and secondary productivity in L-Lake is the likely result, with the reservoir shifting from a eutrophic condition to a less eutrophic, or even mesotrophic, condition.

Whether the change from eutrophic conditions would be a benefit or a problem would depend entirely on management objectives. If the objective is maximum fish production, the nutrient loading reduction would be a problem; if the objective is maximum water clarity and aesthetics, the reduction would be a benefit. To date, DOE has managed L-Lake to meet regulatory requirements while functioning as a cooling reservoir. Because a reduction in nutrient loading would not affect these objectives, the change in nutrient regime would be neutral for lake management.

In addition to lower rates of nutrient loading, the reliance on local runoff and groundwater for recharging L-Lake would result in lower concentrations of dissolved salts, or lower ionic strength. Loss of ionic strength had at least one biological effect during the Par Pond drawdown. Without the addition of Savannah River water, the relatively large influence of groundwater and natural surface inputs (having low ionic strength) to Par Pond was observed in the water chemistry of the reservoir. The specific conductance of the Par Pond surface water was reduced from near 100 microsiemens per centimeter to about 30 microsiemens per centimeter. Coincident with the new ionic strength was the enhanced bioaccumulation of cesium-137 in largemouth bass muscle tissue. This observation suggested an increased biological mobility of cesium-137 (a metabolic analog of potassium) stemming from the reduced availability of potassium (DOE 1995a).

#### 4.1.2.2.3 Shut Down and Maintain

Refer to Section 4.1.2.2.2. This alternative would have essentially the same water flow as those described for the Shut Down and Deactivate Alternative; therefore, those impacts are likely to prevail under both alternatives.

### 4.1.3 GROUNDWATER

This section summarizes groundwater data available for the SRS (see Aadland, Gellici, and Thayer 1995; WSRC 1996f) and pertinent data about the areas of interest for this EIS. It describes the current knowledge base of groundwater conditions and character at the SRS and near L-Lake, including such issues as transmissivity, hydraulic conductivity, flow directions, quality, and usage.

#### 4.1.3.1 Affected Environment

Two hydrogeological provinces underlie the SRS – the Piedmont Hydrogeologic Province, which is older, and the Southeastern Coastal Plain Hydrogeologic Province (see Figure 4-10). The Piedmont Province consists of the crystalline bedrock and consolidated sediments of the Triassic-age Dunbarton Basin. Aquifers in this province are generally not useful for domestic or industrial purposes. The Southeastern Coastal Plain Hydrogeologic Province consists of Cretaceous, Tertiary, and Quarternery age unconsolidated sands, silts, limestones, and clays, as described in Section 4.1.1.1. This province includes the formations that provide water for the SRS and the surrounding area. The Southeastern Coastal Plain Hydrogeologic Province contains the following aquifer systems for the southeast portion of the Site (youngest to oldest, see Figure 4-5); SRS-specific units are shown in parenthesis:

- Floridan aquifer system
- Meyers Branch confining system (Crouch Branch confining unit)
- Dublin aquifer system (Crouch Branch aquifer)
- Allendale confining system (McQueen Branch confining unit)
- Midville aquifer system (McQueen Branch aquifer)
- Appleton confining system (the base of the province)

**Regional Hydrogeologic Setting**

The Floridan aquifer system and the Meyers Branch confining system comprise approximately 550 feet (170 meters) of the nearly 2,000 feet (610 meters) of sediments that are the Southeastern Coastal Plain Hydrogeologic Province (Aadland, Gellici, and Thayer 1995). The Floridan aquifer system is the only hydrogeologic unit that the alternatives are likely to affect (see Aadland, Gellici, and Thayer 1995; WSRC 1996f). Figure 4-5 shows the correlation between the geological formations and hydrostratigraphic nomenclature.

The Floridan aquifer system includes two aquifers and one confining unit:

- Water table aquifer
- First confining unit
- First confined aquifer

**Aquifer Units**

The water table aquifer and the first confined aquifer are the focus of the groundwater analysis in this EIS because none of the alternatives would affect the other aquifers or the confining units (see Aadland, Gellici, and Thayer 1995; WSRC 1996f).

The water table aquifer is comprised of the Tobacco Road Formation, the Dr Branch Formation, and the Clinchfield or Santee Formation. The first confining unit includes the